

REMARKS

Claims 1-4 and 25 have been amended. Claims 1 through 25 are now pending in this application.

In paragraph 1 of the Office Action, claims 1 and 25 were objected to. Claims 1 and 25 have been amended to overcome the objection.

In paragraph 2 of the Office Action, claims 5-11, 15-20 and 25 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Antecedent basis for "the fluid" in claim 5 is provided in claim 1. Claim 25 has been amended to overcome the rejection. The Applicants respectfully submit that claims 19-20 meet the definiteness criteria under 35 U.S.C. 112, second paragraph. The test for definiteness under 35 U.S.C. 112, second paragraph is whether one skilled in the art would understand the language and scope of the claim in view of the specification and drawings. A person skilled in the art would clearly understand what is meant by the language in claims 19 and 20. Claim 19 recites that "said fluid" (i.e. the fluid identified in claims 1, the base claim for claim 19) "is supercritical carbon dioxide". There is nothing unclear or confusing about this language. Claim 19 merely recites what the "fluid" called for in claim 1 and the other intervening dependent claims is (i.e. supercritical carbon dioxide), and one skilled in the art would clearly understand the language and scope of claim 19. Similarly, there is nothing unclear or confusing about the language in claim 20 (i.e. "wherein said fluid further comprises an organic

socket"), and one skilled in the art would clearly understand the meaning and scope of claim 20. Claims 19 and 20 meet the definiteness criteria under 35 U.S.C. 112, second paragraph and the rejection should be withdrawn.

Claims 1-7, 9-20 and 25 were rejected under 35 U.S.C 102(b) as being anticipated by Bergman et al. (U.S. Patent 5,235,995).

Claim 1 recites a chuck assembly 72 for holding a sample (please see Figures 5-6). The chuck member 76 has first fluid passages (100) directing a fluid in a fluid flow through the chuck and toward the sample. The chuck member has second fluid passages (102) directing fluid away from the sample. The sample holder (78) is disposed to hold the sample with a predetermined surface of the sample in a predetermined orientation relative to the fluid flow directed by the chuck member 76 toward the sample.

Bergman et al. (U.S. Patent 5,235,995) discloses an apparatus for processing semiconductor wafers having a shaft 31, 354 and a wafer holder 30, 330 which has wafer supporting fingers 334.

Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the chuck member having first fluid passages directing a fluid in a fluid flow through the chuck and toward the sample as claimed. Instead, Bergman et al. (U.S. Patent 5,235,995) discloses wafer holder 30, 330 having bushings 335 and finger 334 with diaphragm 323 that engages bushing 335. As described in column 13, lines 60-64 and shown in figure 14, diaphragm 323 specifically prevents fluid flow as opposed

to allowing fluid flowing in a first direction through openings in the chuck member as called for in claim 1. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the chuck member having second fluid passages directing fluid away from the sample. Instead, Bergman et al. (U.S. Patent 5,235,995) discloses circumferential grooves 363 and lip 362 which restrict gas flow as opposed to having second fluid passages directing fluid away from the sample as claimed in claim 25 (see column 13, line 39). Lip 362 and grooves 363 in Bergman operate to form a seal. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the sample holder being disposed to hold the sample in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample. Indeed, Bergman et al. (U.S. Patent 5,235,995) fails to disclose fluid flow directed by the chuck member toward the sample as claimed in claim 1.

For the reasons set forth above, the features of claim 1 are neither disclosed or suggested by Bergman et al. (U.S. Patent 5,235,995). Accordingly, claim 1 is patentable over Bergman et al. (U.S. Patent 5,235,995).

In addition to the features of claim 1, claim 2 recites that the second fluid passages, at a periphery of the chuck member, form means for propelling the fluid. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of second fluid passages at a periphery of the chuck member that form means for propelling fluid. Instead, Bergman et al. (U.S. Patent 5,235,995) discloses a grooves 363 and lip 362 which restrict gas flow (i.e. form a seal) as opposed to propel

a fluid as claimed in claim 2 (see column 13, line 39). The grooves 363 cannot and do not propel fluid. For the reasons set forth above relating to claim 1 and herein relating to claim 2, the features of claim 2 are neither disclosed or suggested by Bergman et al. (U.S. Patent 5,235,995). Accordingly, claim 2 is patentable over Bergman et al. (U.S. Patent 5,235,995).

In addition to the features of claim 1, claim 3 recites that the second fluid passages comprise a plurality of grooves extending along an outer surface of said cylinder with the grooves being at an acute angle with respect to a longitudinal axis of the chuck member. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the second fluid passages comprising a plurality of grooves extending along an outer surface of the cylinder with the grooves being at an acute angle with respect to a longitudinal axis of the chuck member. Instead, Bergman et al. (U.S. Patent 5,235,995) discloses a outwardly parallel facing grooves 363 and lip 362 which restrict gas flow and are clearly orthogonal with respect to longitudinal axis (x) and not at an acute (i.e. less than 90°) angle with respect to the longitudinal axis 3 (see column 13, line 38). For the reasons set forth above relating to claim 1 and herein relating to claim 3, the features of claim 3 are neither disclosed or suggested by Bergman et al. (U.S. Patent 5,235,995). Accordingly, claim 3 is patentable over Bergman et al. (U.S. Patent 5,235,995).

Claim 5 recites the apparatus of Claim 4 in combination with a motor for rotating the shaft (74) so that fluid flows generally along the shaft in a first direction and through the openings (100) in the chuck member (76) around the sample holder (78) and then along a wall of

the chamber in a second direction generally opposite to the first direction. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the shaft being rotated so that fluid flows generally along the shaft in a first direction and through openings in the chuck member around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction. Instead, Bergman et al. (U.S. Patent 5,235,995) discloses in column 13, lines 60-64 and shows in figure 14, that diaphragm 323 specifically prevents fluid flow as opposed to allowing fluid flowing in a first direction through openings in the chuck member as claimed. Further, Bergman et al. (U.S. Patent 5,235,995) discloses grooves 363 and lip 362 which restrict gas flow (as opposed to proper fluid to flow) around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction as called for in claim 5 (see column 13, line 39). The features of claim 5 are neither disclosed or suggested by Bergman et al. (U.S. Patent 5,235,995). Accordingly, claim 5 is patentable over Bergman et al. (U.S. Patent 5,235,995). Claims 1-24 are patentable over the cited prior art and should be allowed.

Claim 25 is similar to claim 1 in that claim 25 recites that the chuck member has first fluid passages (100) directing a fluid in a fluid flow through the chuck and toward the sample, and has second fluid passages (102) directing the fluid away from the sample. The sample holder (78) is disposed to hold the sample with a predetermined surface of the sample in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample. Further, claim 25 recites

that fluid flows generally along the shaft in a first direction and through the first fluid passages (100) in the chuck member around the sample holder (78) and then along a wall of the chamber in a second direction generally opposite to the first direction.

Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the chuck member having first fluid passages directing a fluid in a fluid flow through the chuck and toward the sample. As described in column 13, lines 60-64 and shown in figure 14, diaphragm (323) specifically prevents fluid flow as opposed to allowing fluid flowing in a first direction through openings in the chuck member as claimed in claim 25. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the chuck member having second fluid passages directing fluid away from the sample, grooves 363 and lip 362 in Bergman restrict gas flow and do not direct fluid away from the sample as called for in claim 25 (see column 13, line 39). Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the sample holder being disposed to hold the sample with a predetermined surface thereof in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion that the fluid flows generally along the shaft in a first direction and through first fluid passages in the chuck member around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction. Instead, in Bergman et al. (U.S. Patent 5,235,995), as described in column 13, lines 60-64 and shown in figure 14, diaphragm 323 specifically

prevents fluid flow (as opposed to allowing fluid flowing in a first direction) through first fluid passages in the chuck member and grooves 363 and lip 362 restrict gas flow (as opposed to allow fluid to flow) around the sample holder and then along a wall of the chamber in a second direction generally opposite to the first direction as claimed in claim 25 (see column 13, line 39). The features of claim 25 are neither disclosed or suggested by Bergman et al. (U.S. Patent 5,235,995). Accordingly, claim 25 is patentable over Bergman et al. (U.S. Patent 5,235,995).

Claims 1, 2, 12-14 and 25 were rejected under 35 U.S.C 102(b) as being anticipated by Du Gal (U.S. Patent 2,886,046).

Claim 1 recites, that the chuck member 76 has first fluid passages (100) directing a fluid in a fluid flow through the chuck and toward the sample, and (the chuck member) has second fluid passages (102) directing fluid away from the sample. A sample holder 78 is disposed to hold the sample with a predetermined surface thereof in a predetermined orientation relative to the fluid flow directed by the chuck member (76) toward the sample. A sample receiving assembly (90, 92) is claimed for holding the sample on the sample holder (78) so that the sample remains fixed to the sample holder when the shaft (74) rotates and causes the chuck member (76) and sample holder (78) to rotate with the shaft.

Du Gal (U.S. Patent 2,886,046) discloses an apparatus for cleaning small parts having a basket 26 and impeller 47. Basket 26 has impeller housing 33 and upper and lower basket sections 38, 39 where the parts to be cleaned are placed. Impeller 47 is driven in the impeller housing 33

by spindle 46. In operation, parts are loosely placed in baskets 38, 39 and basket 26 is lowered into cleaning liquid. Impeller 47 is then rotated to drive liquid into the parts while basket 26 remains stationary (column 5, rows 50-57). To rinse, the basket 26 is raised out of the cleaning liquid and rotation of impeller 47 is reversed engaging a clutch, locking basket 26 to impeller 47 with centrifugal force removing surplus liquid from the parts (column 3 row 62 through column 4 row 30).

Nowhere in Du Gal (U.S. Patent 2,886,046) is there a disclosure or suggestion of a sample holder disposed to hold the sample with a predetermined surface thereof in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample. Instead, Du Gal (U.S. Patent 2,886,046) discloses upper and lower basket sections 38, 39 where the parts to be cleaned are merely placed loosely in the basket. Thus, the parts in the basket are not held with a predetermined surface in a predetermined orientation relative to the fluid flow directed by the chuck member as claimed in claim 1. Also, nowhere in Du Gal (U.S. Patent 2,886,046) is there absolutely any mention of a sample receiving assembly claimed for holding the sample on the sample holder so that the sample remains fixed to the sample holder when the shaft rotates and causes the chuck member and sample holder to rotate with the shaft. In Du Gal (U.S. Patent 2,886,046) the parts once placed in baskets 38, 39 are free to move in the baskets and probably do move under the influence of the fluid flow relative to the basket. This is not the same as being fixed relative to the sample holder.

Further, the impeller 47 has but a single set of fluid passages, not first fluid passages directing flow through the chuck toward the sample and second fluid passages directing flow away from the sample.

For the reasons set forth above, the features of claim 1 are neither disclosed or suggested by Du Gal (U.S. Patent 2,886,046). Accordingly, claim 1 is patentable over Du Gal (U.S. Patent 2,886,046).

In addition to the features of claim 1, claim 2 recites where the second fluid passages, at a periphery of the chuck member, form means for propelling a fluid. Nowhere in Du Gal (U.S. Patent 2,886,046) is there a disclosure or suggestion of second fluid passages at a periphery of the chuck member that form means for propelling a fluid. Instead, Du Gal (U.S. Patent 2,886,046) discloses basket 26 remains stationary during cleaning operations and centrifugal force removing surplus liquid during post cleaning operations as opposed to means for propelling a fluid as claimed in claim 2. For the reasons set forth above relating to claim 1 and herein relating to claim 2, the features of claim 2 are neither disclosed or suggested by Du Gal (U.S. Patent 2,886,046). Accordingly, claim 2 is patentable over Du Gal (U.S. Patent 2,886,046). Claims 1-24 are patentable over the cited prior art and should be allowed.

Claim 25 recites a chuck member having first fluid passages (through the chuck member) directing a fluid in a fluid flow through the chuck and toward the sample, and having second fluid passages through the chuck member directing the fluid away from the sample. A sample holder 78 is disposed to hold the sample with a predetermined

surface in a predetermined orientation to the fluid flow directed by the chuck member toward the sample. When the shaft is turned one direction, fluid flows generally along the shaft in a first direction and through the first fluid passages in the chuck member around the sample holder and flows along through the second fluid passages in a second direction generally opposite to the first direction.

Du Gal (U.S. Patent 2,886,046) discloses that the basket 26 is lowered into cleaning liquid, and impeller 47 is then rotated to drive liquid into the parts while basket 26 remains stationary (column 5, rows 50-57). Fluid flows through the impeller in but one direction when the impeller shaft is rotated in one direction. To rinse, the basket 26 is raised out of the cleaning liquid and rotation of impeller 47 is reversed engaging a clutch, locking basket 26 to impeller 47 with centrifugal force removing surplus liquid from the parts (column 3 row 62 through column 4 row 30). Nowhere in Du Gal (U.S. Patent 2,886,046) is there a disclosure or suggestion of a sample holder disposed to hold the sample in a predetermined orientation relative to the fluid flow directed by the chuck member toward the sample. The small parts in the basket appear free to move around inside the basket. The parts to be cleaned are merely placed inside the basket, with no mention of a predetermined orientation relative to the fluid flow directed by the chuck member as claimed in claim 25.

For the reasons set forth above, the features of claim 25 are neither disclosed or suggested by Du Gal (U.S. Patent 2,886,046). Accordingly, claim 25 is patentable over Du Gal (U.S. Patent 2,886,046).

Claims 8 and 21-24 were rejected under 35 U.S.C 103(a) as being unpatentable over Bergman et al. (U.S. Patent 5,235,995).

Claim 8 is dependent on claim 1 and should be allowed for the aforementioned reasons. In addition, claim 8 recites that the first opening is disposed proximate the shaft and the second opening is disposed proximate the wall of the chamber. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of both first and second openings, much less of a first opening disposed proximate the shaft, nor would it be obvious to select such a location as it would render the Bergman device inoperable. As described above, instead, Bergman et al. (U.S. Patent 5,235,995) discloses wafer holder 30, 330 having bushings 335 and finger 334 with diaphragm 323 that engages bushing 335. As described in column 13, lines 60-64 and shown in figure 14, diaphragm 323 specifically prevents fluid flow through the chuck member which would be required if the first opening is disposed proximate the shaft as called for in claim 8. The features of claim 8 are neither disclosed or suggested by Bergman et al. (U.S. Patent 5,235,995). Accordingly, claim 8 is patentable over Bergman et al. (U.S. Patent 5,235,995).

In addition to the features of claim 1, claim 21 recites that the sample holder is a rectangular plate. Nowhere in Bergman et al. (U.S. Patent 5,235,995) is there a disclosure or suggestion of the sample holder being a rectangular plate nor would it have been a obvious design choice as it serves a different structural function, that is to further agitate the fluid. The features of claim

21 are neither disclosed or suggested by Bergman et al. (U.S. Patent 5,235,995). Accordingly, claim 21 is patentable over Bergman et al. (U.S. Patent 5,235,995).

Favorable reconsideration and allowance of the claims, which remain pending in this application, is respectfully requested. Should any unresolved issue remain, the Examiner is invited to call Applicant's Attorney at the telephone number indicated below.

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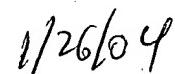
Respectfully submitted,



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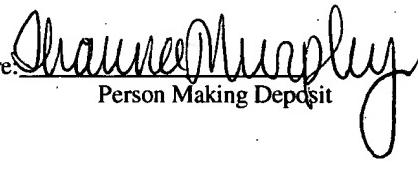


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